

Title (en)  
SEMICONDUCTOR ELEMENT AND PROCESS FOR PRODUCING SEMICONDUCTOR ELEMENT

Title (de)  
HALBLEITERELEMENT UND VERFAHREN ZUR HERSTELLUNG DES HALBLEITERELEMENTS

Title (fr)  
ÉLÉMENT À SEMI-CONDUCTEUR ET PROCÉDÉ POUR LA PRODUCTION D'UN ÉLÉMENT À SEMI-CONDUCTEUR

Publication  
**EP 2528118 A1 20121128 (EN)**

Application  
**EP 10843110 A 20101115**

Priority  
• JP 2010008189 A 20100118  
• JP 2010070308 W 20101115

Abstract (en)  
A semiconductor device has a satisfactory ohmic contact on a p-type principal surface tilting from a c-plane. The principal surface 13a of a p-type semiconductor region 13 extends along a plane tilting from a c-axis (axis <0001>) of hexagonal group-III nitride. A metal layer 15 is deposited on the principal surface 13a of the p-type semiconductor region 13. The metal layer 15 and the p-type semiconductor region 13 are separated by an interface 17 such that the metal layer functions as a non-alloy electrode. Since the hexagonal group-III nitride contains gallium as a group-III element, the principal surface 13a comprising the hexagonal group-III nitride is more susceptible to oxidation compared to the c-plane of the hexagonal group-III nitride. The interface 17 avoids an increase in amount of oxide after the formation of the metal layer 15 for the electrode.

IPC 8 full level  
**H01L 33/32** (2010.01); **H01L 33/36** (2010.01); **H01L 33/40** (2010.01); **H01L 33/16** (2010.01)

CPC (source: EP KR US)  
**H01L 33/16** (2013.01 - EP KR US); **H01L 33/32** (2013.01 - KR); **H01L 33/36** (2013.01 - KR); **H01L 33/40** (2013.01 - EP US);  
**H01L 33/32** (2013.01 - EP US)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**US 2011175103 A1 20110721**; **US 8227898 B2 20120724**; CN 102414848 A 20120411; CN 102414848 B 20140709; EP 2528118 A1 20121128; EP 2528118 A4 20150422; JP 2011146636 A 20110728; JP 5749888 B2 20150715; KR 20110110803 A 20111007; TW 201131810 A 20110916; WO 2011086755 A1 20110721

DOCDB simple family (application)  
**US 83622210 A 20100714**; CN 201080018398 A 20101115; EP 10843110 A 20101115; JP 2010008189 A 20100118; JP 2010070308 W 20101115; KR 20117018941 A 20101115; TW 99141600 A 20101130